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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/711,278	09/07/2004	Charles H. Honeyman	H-307DIV	5277
26245	7590	10/31/2005	EXAMINER	
DAVID J COLE E INK CORPORATION 733 CONCORD AVE CAMBRIDGE, MA 02138-1002			TSOY, ELENA	
			ART UNIT	PAPER NUMBER
			1762	

DATE MAILED: 10/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/711,278

Applicant(s)

HONEYMAN ET AL.

Examiner

Elena Tsoy

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 8/24/2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 35-42 is/are pending in the application.
- 4a) Of the above claim(s) 2-7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,8-20 and 35-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>8/24/2005</u> .   | 6) <input type="checkbox"/> Other: _____                                    |

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***Response to Amendment***

Amendment filed on August 24, 2005 has been entered. Claims 21-34 have been cancelled. New claims 35-42 have been added. Claims 1-20, and 35-42 are pending in the application. Claims 2-7 are withdrawn from consideration as directed to a non-elected invention.

***Election/Restrictions***

1. Applicant's election without traverse of the species of claims 8-10 in the reply filed on August 24, 2005 is acknowledged.

***Claim Objections***

2. Objection to claim 15 because of the informalities has been withdrawn due to amendment.

***Terminal Disclaimer***

3. The terminal disclaimer filed on August 24, 2005 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of any patent granted on copending Application No. 10/711,829 has been reviewed and is accepted. The terminal disclaimer has been recorded.

***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

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Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Provisional rejection of claim 1 under the judicially created doctrine of double patenting over claim 41 of copending Application No. 10/711,829 has been withdrawn due to filing a terminal disclaimer.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Rejection of claims 1, 8-11, 14, 15 under 35 U.S.C. 102(b) as being anticipated by Sakai et al (US 5,750,258) has been withdrawn due to amendment.

8. Rejection of claims 1, 8, 11-13, 19, 20 under 35 U.S.C. 102(e) as being anticipated by Devonport (US 6,103,380) has been withdrawn due to amendment.

9. Claims 35-36, 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Herman et al (US 3,884,871).

Herman et al disclose a process for producing a polymer-coated titanium dioxide (claimed titania) pigment particles (See column 1, lines 48-52), which process comprises adding an anchoring agent having polar groups which are strongly adsorbed on the pigment surface (See column 3, lines 38-40) and a polymerizable group; adding a monomer such as C<sub>4</sub>-C<sub>20</sub>-branched

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alkyl esters of acrylic acid (claimed monomer having a chain of at least four carbon atoms attached to a polymerizable group) (See column 4, lines 34-38) for copolymerization with the polymerizable group of the anchoring agent (See column 4, lines 38-46) thereby **bonding** (i.e. *reacting* the polar groups of the anchoring agent with the pigment surface) the coating polymers onto the surface of the pigment (See column 3, lines 28-30).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 1, 8-11, 14, 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai et al (US 5,750,258) in view of Uytterhoeven et al (US 4,663,265) for the reasons of record set forth in paragraph 11 of the Office Action mailed on 4/26/2005 since limitation of claim 21 is now inserted into claim 1.

12. Claims 1, 8, 11-13, 19, 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devonport (US 6,103,380) in view of Uytterhoeven et al (US 4,663,265) for the reasons of record set forth in paragraph 11 of the Office Action mailed on 4/26/2005 since limitation of claim 21 is now inserted into claim 1.

13. Claims 13, 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devonport in view of Uytterhoeven et al, further in view of Matyjaszewski et al (US 6,121,371)

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for the reasons of record set forth in paragraph 10 of the Office Action mailed on 4/26/2005 since limitation of claim 21 is now inserted into claim 1.

14. Claims 35-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katoh et al (US 6,514,328) in view of Sakai et al (US 5,750,258).

Katoh et al disclose a process for producing a polymer-coated pigment powder 20 for dispersing into a suspending fluid to form an electrophoretic medium or liquid crystal device (See column 1, lines 16-20). The process comprises covalently bonding a polymeric layer 21 (See column 17, lines 22-23) such as polymethylacrylate (See column 17, lines 7-8) to the surface of the pigment powder 20 by coating (See column 17, lines 15-21), chemical adsorption using a silane coupling agent such as vinyltriethoxysilane (See column 17, lines 42-43) or graft polymerization (See column 17, lines 28-30) or combination thereof (See column 18, lines 16-21). The pigment includes titanium oxide (See column 17, lines 4-5) or titanium oxide coated with a silicon oxide (See column 17, line 6).

Katoh et al fail to teach that a polymer coating is formed on the surface by copolymerization of a monomer with a polymerizable group of the silane coupling agent.

Sakai et al teach that a polymer layer can be covalently bonded to the surface of a silicon oxide for the use in a liquid crystal device by reacting the silane portion of the vinyl-containing silane coupling agent such as vinyltriethoxysilane (See column 5, line 20) with the silanol group on the silica fine particle to form a chemical bond (claimed covalent bond), then reacting the vinyl group of the silane coupling agent with the unsaturated double bond of a monomer mixture comprising a monofunctional vinyl monomer (M) and a polyfunctional vinyl monomer (P) with P/M molar ratio of 70/30 mol (See column 7, lines 49-56), for forming the crosslinked resin coating when the monomers are polymerized, to form a chemical bond, whereby a crosslinked



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resin coating excellent in adhesion is formed on the surface of each silica fine particle through the vinyl-containing silane coupling agent (See column 4, lines 53-67; column 5, lines 1-15, 38-39). The polyfunctional monomers include acrylates and methacrylates of polyhydric alcohols, polyethylene glycol dimethacrylate (claimed monomer having a chain of at least about four carbon atoms attached to a polymerizable group) etc. (See column 8, lines 33-43) (i.e. the polymer formed on the particles would comprise a main chain and a plurality of side chains extending from the main chain, each of the side chains comprising at least about four carbon atoms).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have formed a polymer layer 21 in Katoh et al by copolymerization of a monomer with a polymerizable group of the silane coupling agent as described by Sakai et al with the expectation of providing the desired excellent adhesion of the polymer layer to the surface of each pigment particle through the vinyl-containing silane coupling agent.

### ***Response to Arguments***

15. Applicants' arguments filed August 24, 2005 have been fully considered but they are not persuasive.

(A) Applicants argue that Uytterhoeven et al would not teach a person of ordinary skill in the relevant art that the polymer-coated particles described in Devonport or Sakai would be useful in an electrophoretic medium.

The Examiner respectfully disagrees with this argument. First of all, claim 1 is directed to a process for ***producing a polymer-coated pigment particle***, and a step (c) of claim 1 recites intent of use of the polymer-coated pigment particle so that the step (c) would not affect patentability of the **claimed process** for ***producing a polymer-coated pigment particle***.

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Secondly, Uytterhoeven et al teach that any inorganic pigment coated with acrylate polymers (See column 4, lines 20-25) through an **anchoring** agent (See column 3, lines 1-3) may be used for forming an electrophoretic medium for the development of electrostatic image by charged toner particles (See column 1, lines 6-11) by dispersing into a suspending fluid (See column 2, lines 46-62). Both Devonport/Sakai et al teach two-part polymer structure since an anchoring agent in Devonport/Sakai et al are copolymerized with monomers. Devonport teaches that inorganic pigment particles coated with acrylate polymers can be used as toners (See column 10, line 37) and Sakai et al teach that inorganic pigment particles coated with acrylate polymers can be used in liquid crystal devices, which are known to be based on the same principle as electrophoretic devices.

Therefore, one of ordinary skill in the art would have reasonable expectation of success in using inorganic pigments of Devonport/Sakai et al coated with acrylate polymers through an anchoring agent for forming an electrophoretic medium by dispersing into a suspending fluid.

### ***Conclusion***

16. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37



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CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Elena Tsoy whose telephone number is 571-272-1429. The examiner can normally be reached on Monday-Thursday, 9:00AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks can be reached on 571-272-142323. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Elena Tsoy  
Primary Examiner  
Art Unit 1762

ELENA TSOY  
PRIMARY EXAMINER  
*ETsoy*

October 27, 2005